



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,420	09/26/2003	Khiem K. Nguyen	AMAT/8349/MASK/ETEC/ARNOL	8442

44257 7590 05/04/2006

PATTERSON & SHERIDAN, LLP
3040 POST OAK BOULEVARD, SUITE 1500
HOUSTON, TX 77056

EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/672,420	Applicant(s) NGUYEN ET AL.	
	Examiner Ram N. Kackar	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 23-27 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: These claims are directed to methods which are distinct inventions and accorded a separate status and classification.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 23-27 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-2, 4-6, 8-16 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Herchen et al (US 6159297).**

Herchen et al disclose a process chamber (Fig 1) comprising a substrate support member (30), an interferometer end point detection system (175 and Col 9 lines 5-35) mounted above and configured to detect a peripheral region of the substrate (Fig 1). Further the interferometer end point system comprises a light source and a light detector (Col 10 lines 18-65) and a computer

Art Unit: 1763

for calculating a spectra (Col 10 line 65 to Col 11 line10) and comparing to a stored characteristic value to determine the endpoint.

Regarding the limitation of test pattern it is noted that reference to contents of an apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

Further, newly added limitation in claim 5 is directed to an intended use. The detection of end point usually works on a pattern undergoing etching during an etching process.

4. Claims 1-2, 4-14, 16, 18 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yohei Yamazawa (JP 2001217227).

Yohei Yamazawa disclose a process chamber (Fig 1) comprising a substrate support member (12), an interferometer end point detection system (Abstract) mounted above and configured to detect a peripheral region of the substrate (Fig 1). Further the interferometer end point system comprises a light source and a light detector (23,22) and a computer for calculating a spectra (26 and 27).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1763

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herchen et al (US 6159297) in view of Mihashi et al (JP 11058225).

Herchen et al disclose a process chamber (Fig 1) comprising a substrate support member (30), an interferometer end point detection system (175 and Col 9 lines 5-35) mounted above and configured to detect a peripheral region of the substrate (Fig 1). Further the interferometer end point system comprises a light source and a light detector (Col 10 lines 18-65) and a computer for calculating a spectra (Col 10 line 65 to Col 11 line10) and comparing to a stored characteristic value to determine the endpoint.

Herchen et al do not disclose the detection of the end point from below the substrate. The decision to detect end point from top or bottom side, however, depends upon the orientation of etching and type of multilayers, on the substrate and convenience of mounting hardware.

Mihashi et al disclose detecting end point from the bottom side of the substrate (Abstract and Fig 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to detect end point from below the substrate since decision to detect end point from top or bottom side depends upon the orientation of etching and type of multilayers, on the substrate and convenience of mounting hardware.

Further this is only a rearrangement of parts. Rearrangement of parts was held to have been obvious. *In re Japikse* 86 USPQ 70 (CCPA 1950). Similarly reversal of parts was held to have been obvious. *In re Gazda* 104 USPQ 400 (CCPA 1955).

Response to Arguments

Applicant's arguments filed 2/16/2006 have been fully considered but they are not persuasive.

Applicant argues that since Herchen et al disclose an interferometer end point detection system where a computer determines an end point by comparing to a stored characteristic value this apparatus could not be used for a photomask as few or no data is available for storage.

Firstly, as an anticipation rejection is proper if all limitations are found in a single reference, the rejection is proper. Secondly there is nothing in the claim to limit the end point to a certain method. Thirdly - even though reading specification in to claim is prohibited- there is a suggestion of using prior data to determine operating condition (Para graph 36 of US Pub of the application).

In response to applicants argument that Herchen et al do not disclose a photomask etch chamber, it is noted that the disclosure does not suggest that the etch chamber could not be used for a photomask.

Applicant repeats above arguments with respect to the rejection relying upon Yamazawa. Further applicant argues against the reference of Mihashi et al since the wafer is rotated.

In response it is noted that Mihashi is used only for the limitation of detection at the rear of the substrate. There is nothing to suggest that this could not be used in a combination with Herchen et al.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ram Kackar

Primary Examiner AU 1763